



PHOENIX
TECHNOLOGY SERVICES USA INC.

Job Number: 1321428
Company: Extraction Oil & Gas
Lease/Well: Winder 9-41
Location: 9-T6N-R67W
Rig Name: Fort Drilling #5
RKB: ☐
G.L. or M.S.L.: 4868

State/Country: Colorado
Declination: 8.62
Grid: ☐
File name: C:\WINSERVE\1321428.SVY
Date/Time: 29-Oct-13 / 00:35
Curve Name: As Drilled: Winder 9-41

As Drilled: Winder 9-41

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 46.60
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>C L O S U R E Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
Tie In									
650.00	.00	.00	650.00	.00	.00	.00	.00	.00	.00
712.00	.30	296.90	712.00	.07	-.14	-.05	.16	296.90	.48
743.00	.70	342.80	743.00	.29	-.27	.00	.40	316.82	1.73
775.00	1.20	8.70	774.99	.81	-.28	.35	.86	340.89	2.02
806.00	2.20	3.10	805.98	1.72	-.20	1.04	1.74	353.42	3.27
837.00	2.90	7.10	836.95	3.10	-.07	2.08	3.10	358.71	2.33
868.00	3.70	10.80	867.90	4.86	.21	3.49	4.86	2.53	2.67
899.00	4.70	14.70	898.81	7.07	.72	5.38	7.11	5.85	3.35
931.00	5.10	17.60	930.70	9.69	1.49	7.74	9.81	8.72	1.47
963.00	6.20	17.70	962.54	12.69	2.44	10.50	12.93	10.89	3.44
993.00	6.70	18.00	992.35	15.90	3.48	13.45	16.28	12.33	1.67
1025.00	7.80	21.40	1024.10	19.70	4.84	17.06	20.29	13.82	3.69
1057.00	8.40	22.40	1055.78	23.88	6.53	21.15	24.76	15.29	1.93
1088.00	9.10	26.50	1086.41	28.17	8.48	25.52	29.42	16.76	3.02
1151.00	10.40	32.90	1148.51	37.40	13.80	35.72	39.87	20.25	2.68
1214.00	10.90	40.40	1210.42	46.71	20.75	47.17	51.11	23.95	2.34
1276.00	11.40	47.20	1271.26	55.34	29.04	59.13	62.50	27.69	2.27
1339.00	11.60	49.10	1332.99	63.72	38.40	71.68	74.39	31.07	.68
1435.00	11.10	45.80	1427.11	76.48	52.32	90.56	92.66	34.37	.85
1531.00	11.30	52.10	1521.29	88.70	66.37	109.17	110.78	36.80	1.29
1626.00	11.30	51.90	1614.45	100.16	81.03	127.70	128.84	38.97	.04
1719.00	10.80	50.50	1705.72	111.33	94.93	145.46	146.30	40.45	.61

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
				FT	FT	FT	Distance FT	Direction Deg	
1814.00	10.20	47.50	1799.13	122.67	108.00	162.75	163.44	41.36	.85
1909.00	10.50	53.50	1892.59	133.50	121.16	179.76	180.28	42.22	1.18
2004.00	9.90	51.00	1986.09	143.79	134.46	196.49	196.87	43.08	.78
2098.00	10.20	50.50	2078.65	154.17	147.17	212.86	213.13	43.67	.33
2192.00	10.90	46.20	2171.06	165.62	160.00	230.05	230.28	44.01	1.12
2287.00	10.20	43.20	2264.45	177.97	172.24	247.43	247.67	44.06	.94
2382.00	11.20	40.80	2357.80	191.08	184.03	265.00	265.29	43.92	1.15
2477.00	10.90	42.30	2451.04	204.71	196.10	283.14	283.48	43.77	.44
2570.00	11.70	44.00	2542.23	218.00	208.57	301.33	301.70	43.73	.93
2664.00	11.90	46.10	2634.25	231.57	222.18	320.54	320.92	43.81	.50
2758.00	11.30	48.30	2726.33	244.42	236.04	339.44	339.79	44.00	.79
2852.00	11.40	49.30	2818.49	256.60	249.96	357.92	358.22	44.25	.23
2946.00	11.50	53.40	2910.62	268.25	264.52	376.50	376.73	44.60	.87
3041.00	10.40	50.20	3003.89	279.38	278.71	394.47	394.63	44.93	1.32
3136.00	10.90	50.60	3097.25	290.57	292.24	411.98	412.11	45.16	.53
3231.00	11.00	48.30	3190.53	302.30	305.95	430.00	430.11	45.34	.47
3325.00	10.10	46.10	3282.94	313.99	318.58	447.21	447.31	45.42	1.05
3420.00	10.30	46.50	3376.43	325.61	330.75	464.03	464.13	45.45	.22
3515.00	10.60	47.00	3469.86	337.41	343.30	481.26	481.35	45.50	.33
3609.00	11.50	49.00	3562.12	349.46	356.69	499.27	499.35	45.59	1.04
3702.00	12.70	46.30	3653.05	362.60	371.08	518.76	518.83	45.66	1.43
3798.00	13.10	44.60	3746.63	377.64	386.35	540.18	540.26	45.65	.57
3892.00	13.50	51.70	3838.11	392.03	402.44	561.76	561.82	45.75	1.79
3986.00	13.10	49.60	3929.59	405.73	419.16	583.33	583.37	45.93	.67
4081.00	11.70	46.70	4022.37	419.32	434.37	603.71	603.74	46.01	1.61
4176.00	10.70	45.50	4115.56	432.10	447.67	622.16	622.19	46.01	1.08
4271.00	9.80	42.40	4209.05	444.26	459.42	639.04	639.08	45.96	1.11
4365.00	9.90	43.10	4301.66	456.06	470.33	655.09	655.14	45.88	.17
4459.00	11.00	42.10	4394.10	468.62	481.87	672.09	672.16	45.80	1.19
4554.00	10.90	45.90	4487.37	481.59	494.39	690.11	690.19	45.75	.77
4649.00	9.80	41.20	4580.83	493.93	506.17	707.14	707.23	45.70	1.46
4744.00	10.40	48.60	4674.36	505.68	517.93	723.76	723.85	45.69	1.50
4838.00	10.30	46.10	4766.83	517.12	530.35	740.64	740.73	45.72	.49
4933.00	10.50	50.70	4860.27	528.49	543.17	757.77	757.85	45.78	.90
5028.00	9.90	47.00	4953.77	539.54	555.84	774.57	774.64	45.85	.93
5123.00	9.60	49.80	5047.40	550.23	567.86	790.65	790.71	45.90	.59
5217.00	8.60	54.20	5140.21	559.40	579.55	805.44	805.48	46.01	1.30
5312.00	9.40	52.50	5234.04	568.28	591.46	820.20	820.22	46.15	.89
5406.00	9.90	53.00	5326.71	577.81	604.01	835.86	835.88	46.27	.54
5501.00	9.40	53.10	5420.37	587.39	616.73	851.69	851.69	46.40	.53
5595.00	10.30	42.60	5512.99	598.18	628.56	867.70	867.70	46.42	2.13
5689.00	11.10	45.70	5605.35	610.69	640.73	885.13	885.14	46.38	1.05
5783.00	10.20	51.00	5697.74	622.25	653.67	902.48	902.48	46.41	1.41
5878.00	8.60	46.30	5791.46	632.45	665.34	917.97	917.97	46.45	1.87
5973.00	8.40	42.80	5885.42	642.45	675.19	932.00	932.00	46.42	.58

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E Distance FT	Direction Deg	Dogleg Severity Deg/100
6068.00	8.60	42.80	5979.37	652.75	684.73	946.01	946.01	46.37	.21
6161.00	7.50	59.40	6071.47	660.94	694.68	958.86	958.87	46.43	2.75
6256.00	8.40	52.70	6165.56	668.30	705.54	971.81	971.81	46.55	1.36
6351.00	7.20	47.60	6259.68	676.52	715.46	984.66	984.66	46.60	1.46
6446.00	6.20	43.90	6354.03	684.23	723.41	995.74	995.74	46.59	1.15
6541.00	5.10	36.80	6448.56	691.31	729.50	1005.03	1005.03	46.54	1.37
6635.00	4.80	28.20	6542.21	698.12	733.86	1012.88	1012.88	46.43	.85
6730.00	3.90	25.70	6636.94	704.54	737.14	1019.67	1019.68	46.30	.97
6825.00	2.80	26.50	6731.78	709.52	739.58	1024.86	1024.89	46.19	1.16
6920.00	1.40	37.10	6826.71	712.53	741.31	1028.19	1028.22	46.13	1.52
7014.00	2.00	17.50	6920.67	715.01	742.50	1030.75	1030.79	46.08	.88
7109.00	2.50	5.60	7015.60	718.65	743.20	1033.76	1033.83	45.96	.72
7205.00	3.20	5.90	7111.48	723.40	743.68	1037.38	1037.48	45.79	.73
7300.00	3.00	46.10	7206.35	727.76	745.74	1041.87	1042.00	45.70	2.25
7395.00	2.50	63.30	7301.24	730.42	749.38	1046.34	1046.46	45.73	1.01
7490.00	2.20	71.80	7396.16	731.92	752.97	1049.98	1050.08	45.81	.48
projection to bit									
7542.00	2.20	71.80	7448.12	732.54	754.86	1051.78	1051.87	45.86	.00